

A LISTING OF THE CLAIMS

Claim 1 (Previously Presented): A microelectrode comprising:

- an electrically conducting diamond layer;
- a non-conducting diamond layer formed from electrically non-conducting diamond presenting a planar surface;
- one or more pins or projections of electrically conducting diamond extending at least partially through the non-conducting diamond layer, the pins or projections presenting planar areas of electrically conducting diamond;
- the pins or projections which extend to the planar surface of the non-conducting diamond layer, presenting one or more planar areas of electrically conducting diamond co-planar with the planar surface of the electrically non-conducting diamond; and
- a contact surface or surfaces on a back side of the electrically conducting diamond layer for connection to an external circuit.

Claim 2 (Previously Presented): A microelectrode according to claim 1, wherein the pins or projections extend to a surface of the non-conducting diamond layer, presenting one or more areas of electrically conducting diamond co-planar with that surface.

Claim 3 (Previously Presented): A microelectrode comprising:

- an electrically conducting diamond layer;
- a non-conducting diamond layer formed from electrically non-conducting diamond presenting a planar surface;

one or more pins or projections of electrically conducting diamond extending at least partially through the non-conducting diamond layer, the pins or projections presenting planar areas of electrically conducting diamond;

the pins or projections which extend to the planar surface of the non-conducting diamond layer, presenting one or more planar areas of electrically conducting diamond recessed relative to a surface of the electrically non-conducting diamond layer creating a well or reservoir in that surface; and

a contact surface or surfaces on a back side of the electrically conducting diamond layer for connection to an external circuit

Claim 4 (Previously Presented): A microelectrode according to any one of claims 1 to 2, wherein the pins or projections of electrically conducting diamond comprise circular areas of the electrically conducting diamond.

Claim 5 (Original): A microelectrode according to claim 3, wherein the well or reservoir contains an additive which presents a surface co-planar with the surface in which the well or reservoir is created.

Claim 6 (Original): A microelectrode according to claim 5, wherein the additive modifies the sensitivity or selectivity of the electrode behaviour.

Claim 7 (Original): A microelectrode according to claim 5 or claim 6, wherein the additive is an electrochemical (bio-)chemical.

Claim 8 (Previously Presented): A microelectrode according to claim 1, wherein areas of the electrically conducting diamond layer are in electrical connection with a surface of the electrically conducting diamond layer.

Claim 9 (Previously Presented): A microelectrode according to claim 1, wherein areas of the electrically conducting diamond layer are internally electrically connected within the diamond layer into one or more groups of electrodes.

Claim 10 (Previously Presented): A microelectrode according to claim 1, wherein areas of the electrically conducting diamond layer are externally electrically connected into one or more groups of electrodes.

Claim 11 (Original): A microelectrode according to claim 1, wherein the diamond is synthetic single crystal or polycrystalline diamond.

Claim 12 (Original): A microelectrode according to claim 1, wherein the diamond is CVD synthetic single crystal or polycrystalline diamond.

Claim 13 (Previously Presented): A microelectrode according to claim 2, wherein areas of the electrically conducting diamond layer are co-planar surfaces and smooth.

Claim 14 (Previously Presented): A microelectrode according to claim 2, wherein areas of the electrically conducting diamond layer are co-planar surfaces and have surface roughnesses of less than 100 nmRa.

Claim 15 (Original): A microelectrode according to claim 1, wherein the electrically conducting diamond is boron doped diamond.

Claims 16-18 (Canceled).

Claim 19 (Previously Presented): A microelectrode according to claim 3, wherein at least one of the non-conducting diamond or the conducting diamond is synthetic single crystal or polycrystalline diamond.

Claim 20 (Previously Presented): A microelectrode according to claim 3, wherein at least one of the non-conducting diamond or the conducting diamond is CVD synthetic single crystal or polycrystalline diamond.

Claim 21 (Previously Presented): A microelectrode according to claim 3, wherein the electrically conducting diamond is boron doped diamond.

Claim 22 (Previously Presented): A microelectrode according to claim 3, wherein areas of the electrically conducting diamond layer are co-planar surfaces and smooth.

Claim 23 (Previously Presented): A microelectrode according to claim 3, wherein areas of the electrically conducting diamond layer are co-planar surfaces and surface roughnesses of less than 100 nmRa.

Claim 24 (Previously Presented): A microelectrode according to claim 3, wherein the pins or projections of electrically conducting diamond comprise circular areas of the electrically conducting diamond.